

CLAIMS

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What is claimed is:

1. A composition for the chemical mechanical planarization of tungsten comprising:

- 10 a) An abrasive selected from the group consisting of alumina, spinel, ceria, zirconia and mixtures thereof; and,
- b) An abrasive slurry comprising at least one abrasive selected from the group consisting of silica, alumina, zirconia, ceria and mixtures thereof as a slurry in deionized water; and,
- c) Periodic acid; and,
- d) Ammonium nitrate; and,
- 15 e) A mineral acid in such quantity as to prevent the precipitation of salts of iodic acid.

2. A composition as in claim 1 wherein said abrasive is alumina.

3. A composition as in claim 2 wherein said alumina is form of alumina other than alpha alumina.

4. A composition as in claim 3 wherein said alumina is gamma alumina.

5. A composition as in claim 2 wherein said alumina is present in said composition in an amount from approximately 2% to approximately 4% by weight.

6. A composition as in claim 1 wherein said abrasive slurry is a silica slurry.

7. A composition as in claim 6 wherein said silica slurry is from approximately 0.1% to approximately 0.5% silicon dioxide.

8. A composition as in claim 1 wherein said periodic acid is present in said composition in an amount from approximately 2% to approximately 4% by weight.

5 10. A composition as in claim 1 wherein said mineral acid is nitric acid.

10 12. A composition as in claim 1 wherein said mineral acid is present in said composition in an amount so as to maintain the pH of said composition in the range from approximately 3 to approximately 4.5.

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